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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	10557853
Filing Date	2007-01-29
First Named Inventor	Young et al.
Art Unit	1635
Examiner Name	Jennifer Pitrak
Attorney Docket Number	21892-517 NATL

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Releva Figures Appear
	1	5834279	A	1998-11-10	Rubin et al.	
	2	6593305	B1	2003-07-15	Wright	
	3	3697808		1972-08-29	Merigan et al.	

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U.S.PATENT APPLICATION PUBLICATIONS

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	1	20040009948	A1	2004-01-15	Wright et al.	

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FOREIGN PATENT DOCUMENTS

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	1	98/05769	WO	A3	1998-01-12	Genesense Technologies, Inc.		☐

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	2	98/00532	WO	A3	1998-01-08	Wright, Jim, A.		☐
	3	0 383 190	EP	B1	1990-08-22	Bio-Mega/Boehringer Ingle-Heim Research Inc.		☐

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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T
	1	AMARA et al., "Phorbol Ester Modulation of a Novel Cytoplasmic Protein Binding Activity at the 3'-Untranslated Region of Mammalian Ribonucleotide Reductase R2 mRNA and Role in Message Stability",1994 J. Biol. Chem. 269:6709-7071	☐
	2	AMARA et al., "Defining a novel cis element in the 3'-untranslated Region of mammalian ribonucleotide reductase component R2 mRNA: role in transforming growth factor β1 induced mRNA stabilization"1995 Nucleic Acids Research 23:1461-1467	☐
	3	BARKER et al. Proc. Natl. Acad. Sci.,USA "Inhibition of Plasmodium falciparum malaria using antisense oligodeoxynucleotides" Vol. 93, No. 1, (1996), pp. 514-518,	☐
	4	BITONTI et al., Cancer Research, "Regression of Human Breast Tumor Xenografts in Response to (E)-2'-Deoxy-2'(fluoromethylene) cytidine, an Inhibitor of Ribonucleoside Diphosphate Reductase", March 15,1994, Vol. 6, No. 5 pp. 1485-1490	☐
	5	BJORKLUND et al. Proc. Natl. Acad. Sci., USA , "Structure and promoter characterization of the gene encoding the large subunit (R1 protein) of mouse ribonucleotide reductase", December 1993, Vol. 90 pp. 11322-11326	☐
	6	BJORKLUND S., et al. Biochemistry, "S-Phase-Specific Expression of Mammalian Ribonucleotide Reductase R1 and R2 Subunit mRNAs", 1990, Vol. 29, pp. 5452-5458	☐
	7	BRANCH, A.D. Tibs, "A good antisense molecule is hard to find" Vol. 23, February 1998, pp. 45-50,	☐

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	8	CARAS et al., "Clone Mouse Ribonucleotide Reductase Subunit M1 cDNA Reveals Amino Acid Sequence Homology with Escherichia coli and Herpesvirus Ribonucleotide Reductases", The Journal of Biological Chemistry, Vol. 260, 10 June 1986"	☐
	9	CHAKRABARTI et al., "Cloning and characterization of subunit genes of ribonucleotide reductase, a cell-cycle-regulated enzyme, from Plasmodium falciparum", Proc. Natl. Acad. Sci. USA, Dec 1993, Vol. 90, pp. 12020-12024	☐
	10	CHAUDHURI et al., "cDNA sequence of the small subunit of the hamster ribonucleotide reductase", Biochemica Et Biophysica ACTA, Vo. 1171, 1992, pp. 117-121	☐
	11	CHEN et al., "Defining a novel ribonucleotide reductase r1 mRNA cis element that binds to a unique cytoplasmic trans-action protein", Nucleic Acids Research, Vol. 22, No. 22, 1994, pp. 4796-4797, Oxford University Press	☐
	12	CHEN F. Y. et al., "Mammalian ribonucleotide reductase R1 mRNA stability under normal and phorbol ester stimulating conditions involvement of cis - trans interaction at the untranslated region", Embo Journal, GB, Oxford University Press, Surrey, Vol. 12, No. 10, 1993 pp. 3977-3986	☐
	13	CHITAMBAR et al., "Effect of Hydroxyurea on Cellular Iron Metabolism in Human Leukemic CCRF-CEM Cells: Changes in Iron Uptake and the Regulation of Transferrin Receptor and Ferritin Gene Expression following Inhibition of DNA Synthesis", Cancer Research, Vol. 55, 1 October 1995, pp. 4361-4366	☐
	14	CHIU C. S. et al., "Inhibition of mammalian ribonucleotide reductase by cis-diamminedichloroplatinum(II)" (1998) Adv. Enzyme Regul 33: 129-140	☐
	15	CHOY B. K. et al., "Molecular Mechanisms of Drug Resistance Involving Ribonucleotide Reductase: Hydroxyurea Resistance in a Series of Clonally Related Mouse Cell Lines Selected in the Presence of Increasing Drug Concentrations", (1998) Cancer Research 48: 2029-2035	☐
	16	CORYet al., "Structural Aspects of N-Hydroxy-N'-Aminoguanidine Derivatives as Inhibitors of L1210 Cell Growth and Ribonucleotide Reductase Activity", (1993) Adv Enzyme Regul 33: 129-140	☐
	17	CROOK S. T., "Basic Principles of Antisense Therapeutics", Chapter 1, in Antisense Research and Application, (ed. Stanley Crooke), Springer-Verlang, New York 1998, pp. 1-50	☐
	18	DAVIS et al., "Purification, Characterization, and Localization of Subunit Interaction Area of Recombinant Mouse Ribonucleotide Reductase R1 Subunit", The Journal of Biological Chemistry, Vol. 269, No. 37, 16 September 1994	☐

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	19	FABIANOWSKA-MAJEWSAKet al., "2-Chloro-2-Deoxyadenosine (2CdA) - Biochemical Aspects of Antileukemic Efficacy", (1996) Acta Pol Pharm 53(4): 231-239	☐
	20	FAN et al., "The R1 component of mammalian ribonucleotide reductase has malignancy-suppressing activity as demonstrated by gene transfer expreiments", Proc. Natil. Acad. Sci. USA, Vol. 94, No. 24 1997, pp. 13181-13186	☐
	21	FAN et al., "Ribonucleotide reductase R2 component is a novel malignancy determinant that cooperates with activated oncogenes to determine transformation and malignant potential", Proc. Natl. Acad. Sci. USA Vol. 93 November 1996 (1996-11) pp. 14036-14040	☐
	22	FAN H. et al., "A link between ferritin gene expression and ribonucleotide reductase R2 protein, as demonstrated by retroviral vector mediated stable expression of R2 cDNA", Febs Letters, (1996 Mar 11) 382 (1-2) 145-8	☐
	23	FAN, H., VILLEGAS, C., HUANG, A. and WRIGHT, J.A., "The Mammalian Ribonucleotide Reductase R2 Component Cooperates with a Variety of Oncogenes in Mechanisms of Cellular Transformation", (1998), Cancer Research 58:1650-1653	☐
	24	FAN H., VILLEGAS, C., HUANG, A. and WRIGHT, J.A., "Suppression of Malignancy by the 3' Untrnslated Regions of Ribonucleotide Reductase R1 and R2 Messenger RNAs", (1998), Cancer Research 56:4366-4369	☐
	25	GANDHI et al., "Chlorodeoxyadenosine and Arabinosylcytosine in Patients With Acute Myelogenous Lukemina: Pharmacokinetic, Pharmacodynamic, and Molecular Interactions", (1996) The American Society of Hematology, Blood 87(1): 256-264	☐
	26	GIACCA M. et al., "Synergistic Antiviral Action of Ribonucleotide Reductase Inhibitors and 3'-azido-3'-deoxythymidine on HIV Type 1 Infection in Vitro", Aids Research and Human Retroviruses, (1996) 12/8 (677-682)	☐
	27	GURA T., "Systems for Identifying are Often Faulty", Science, Vol. 278, pp. 1041-1942 (November 1997)	☐
	28	HUANG, Aiping et al., "Ribonucleotide Reductase R2 Gene Expression and Changes in Drug Sensitivity and Genome Stability", Cancer Research, Vol. 57, No. 21 1 November 1997 pp. 4876-4881	☐
	29	HUANG, A. and WRIGHT J.A., "Fibroblast growth factor mediated alterations in drug resistance, adn evidence of gene amplification", (1994) Oncogene 9: 491-199	☐

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	30	HURTA et al., "Early Induction of Ribonucleotide Reductase Gene Expression by Transforming Growth Factor β1 in Malignant H-ras Transformed Cell Lines", The Journal of Biological Chemistry, Vol. 266, No. 35, 15 December 1991 pp. 24097-24100	☐
	31	HURTA R.A. and WRIGHT J.A., "Malignant Transformation by H-ras Results in Aberrant Regulation of Ribonucleotide Reductase Gene Expression by Transforming Growth Factor- β1", (1995) J. Cell. Biochem 57: 543-556	☐
	32	HURTA R.A. and WRIGHT, J.A., "Alterations in the Cyclic AMP Signal Transduction Pathway Regulating Ribonucleotide Reductase Gene Expression in Malignant H-ras Transformed Cell Lines", J. Cell Physiol. 1994 Vol. 158, pp. 187-197	☐
	33	JENSEN et al., "Identification of gene expressed in premalignant breast disease by microscopy-directed cloning", 1994 PNAS USA 91: 9257-9261	☐
	34	LETSINGER et al., "Cholesteryl-conjugated oligonucleotides: Synthesis, properties, and activity as inhibitors of replication of human immunodeficiency virus in cell culture", Proc. Natl. Acad. Sci. USA, 86: 6553-6556 (1989)	☐
	35	MADER R. M. et al., "Transcription and Activity of 5-Fluorouracil Converting Enzymes in Fluoropyrimidine Resistance in Colon Cancer In Vitro", Biochemical Pharmacology 54 (11), 1997, 1233-1242	☐
	36	PARKER et al., "Human M1 subunit of ribonucleotide reductase: cDNA sequence and expression in stimulated lymphocytes", Nucleic Acids Research, Vol. 19 No. 13, 1991, pg 3741	☐
	37	PAVLOFF et al., "Sequence analysis of the large and small subunits of human ribonucleotide reductase", DNA Sequence, Vol. 2, 1992 pp. 227-234	☐
	38	PIEPMEIER et al., "In Vitro and in Vivo Inhibition of Glioblastoma and Neuroblastoma with MDL101731, a Novel Ribonucleoside Diphosphate Reductase Inhibitor", (1996) Cancer Research 56 (2): 359-361	☐
	39	REICHARD, R., "From RNA to DNA, Why So Many Ribonucleotide Reductases?", Science, June 1993, Vol. 260, pp. 1773-1777	☐
	40	ROJANASAKUL, Y., "Antisense oligonucleotide therapeutics: drug delivery and targeting", 1996 Advanced Drug Delivery Reviews 19: 115-131	☐

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	41	ROY B. et al., "Inhibition of Ribonucleotide Reductase by Nitric Oxide Derived from Thionitrites: Reversible Modifications of Both Subunits", Biochemistry 1995, Vol. 34, pp. 5411-5418	☐
	42	SANTAROSSA et al., "Ribonucleotide Reductase Inhibition in the Treatment of Advanced Prostate Cancer: and Experimental Approach with Hydroxyurea and Gallium Nitrate in 20 Patients", (1995) Eur. Journ. Cancer 31a(10): 1718	☐
	43	SLABAUGH M.B. et al., "Vaccinia Virus Ribonucleotide Reductase Expression and Isolation of the Recombinant Large Subunit", Journal Biological Chemistry, Vol. 268, No. 24, pp. 17803-17810 (August 1993)	☐
	44	STANDART N. et al., "Maternal mRNA from clam oocytes can be specifically unmasked in vitro by the antisense RNA complementary to the 3'-untranslated region", Genes Dev r (12A), 1990, pp. 2157-2168	☐
	45	STANDART N. et al., "Control of Translation of Masked mRNAs in Clam Oocytes", Enzyme (basel) 44 (1-4), 1990 (1991), pp. 106-119	☐
	46	SZEKERES T. et al., "Biochemical and antitumor activity of trimidox, a new inhibitor of ribonucleotide reductase", Cancer Chemotherapy and Pharmacology, (1994) 34/1 pp. 63-66	☐
	47	THELANDER et al., "Isolation and Characterization of Expressible cDNA Clones Encoding the M1 and M2 Subunits of Mouse Ribonucleotide Reductase", Molecular and Cellular Biology, Vol. 6, No. 10, October 1986	☐
	48	THELANDER et al., "Molecular cloning and expression of the functional gene encoding the M2 subunit of maouse ribonucleotide reductase: a new dominant marker gene", The Embo Journal, Vol. 8 No. 9, 1989 pp. 2475-2479	☐
	49	WAHLESTEDT et al., "Potent and nontoxic antisense oligonucleotides containing locked nucleic acids", Proc. Natl. Acad. Sci. USA, 2000 97: 5633-5638	☐
	50	WEBER, G., "Biochemical Strategy of Cance Cells and the Design of Chemotherapy: G.H.A. Clowes Memorial Lecture", 1983 Cancer Research 43: 3466-3492	☐

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	51	WECKBECKER, G. et al., "Effects of N-Hydroxy-N'-aminoguanidine Derivatives on Ribonucleotide Reductase Activity, Nucleic Acid Synthesis, Clonogenicity, and Cell Cycle of L1210 Cells", Cancer Research, February 15, 1987, Vol. 47 No. 4 pp. 975-978	☐
	52	WRIGHT et al., "Regulation and drug resistance mechanisms of mammalian ribonucleotide reductase, and the significance to DNA synthesis", Biochemistry and Cell Biology, December 1990, Vol. 68, No. 12, pp. 1364-1371	☐
	53	"Lorus Therapeutics Reports Second quarter Results", January 17, 2003	☐
	54	"Lorus Therapeutics' Lead Anti-Cancer Drugs Reduce Tumor Growth in Mouse Models with Human Prostate Cancer Cells", February 28, 2000	☐
	55	"Lorus Therapeutics Allowed United States Patent to Protect Key Antisense Anticancer Target", March 10, 2003	☐
	56	"Lorus Therapeutics Granted FDA Approval to Proceed With a Clinical Trial for its Anti-Cancer Drug, GTI-2501", March 19, 2001	☐
	57	"Lorus Therapeutics to Present Three Anti-Cancer Drugs at Annual Meeting of the American Association for Cancer Research", March 26, 2001	☐
	58	"Lorus Therapeutics Reports Third Quarter Results", April 23, 2001	☐
	59	"Lorus Therapeutics Signs Agreement to Acquire Genesense Technologies Inc.", April 14, 1999	☐
	60	"Lorus Therapeutics Inc. Announces Two New Members to its Board of Directors", May 2, 2001	☐
	61	"Lorus to Advance its Anticancer Drug, GTI-2501 into Phase II Clinical Trial", May 21, 2003	☐

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	62	"Lorus Therapeutics Treats First Patients in Phase 1 Clinical Trial for GTI-2501", June 11, 2001	☐
	63	"Lorus Therapeutics Allowed Unted States Patent to Specifically Protect GTI-2501", June 13, 2000	☐
	64	"Lorus Therapeutics Reports Year-End Results", July 20, 2001	☐
	65	"Lorus Therapeutics Reports First Quarter Results", October 17, 2001	☐
	66	"Successful Toxicology Results Allow Lorus Therapeutics to Advance GTI-2501 to Clinical Trial" November 15, 2000	☐
	67	"Lorus Therapeutics Announces Anti-Cancer Drug GTI -2501 Demonstrates Total Regression of Cancer in Animal Models", November 29, 1999	☐
	68	"Lorus Therapeutics Receives Issued United States Patent for Invention of Key Anti-Cancer Drugs", January 26, 2000	☐
	69	"Lorus Therapeutics Reports Year-End Results", July 18, 2001	☐
	70	USSN: 09/451,673 Not published and abandoned	☐
	71	USSN: 09/230,521 Not published and abandoned	☐

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☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

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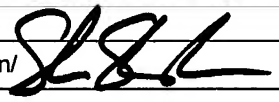
☐ See attached certification statement.

☐ Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☐ None

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Sheridan K. Snedden/ 	Date (YYYY-MM-DD)	2008-02-13
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